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ABSTRACT

This newsletter issue describes 3-wheeled scooters and van lifts that can assist a person with a disability to drive independently or have access to transportation. The section on van lifts compares hydraulic lifts and electric lifts, lists manufacturers, and offers an "assessment quiz" outlining factors to consider in selecting a van lift. In the section on battery-powered scooters and 3-wheelers, such features are described as power and drive systems, batteries, steering and control features, braking, seating, and armrests. A list of manufacturers and questions to consider when selecting a 3-wheeled scooter are included. (JDD)

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# PAM REPEATER

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## THE SELECTION OF A VAN LIFT OR A SCOOTER

No. 63

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*Editor's note:*

*A "secret strength" here at the PAM Centre is the establishment of relationships and communication links both near and far, through our newsletter exchange. Our network with those of kindred interests involves the regular interchange of publications with some 56 organizations.*

*John Stevens, with the Center for Rehabilitation Technology Services of the South Carolina Vocational Rehabilitation Department, edits their Information Support Packets. We especially liked the Assessment Quiz, Considerations in Selecting a Van Lift, and have permission to further share the following narrative and quiz with our readers.*

*For specific information concerning dealers specializing in adapted vans and driving equipment, as well as descriptions of specific products, call the PAM Assistance Centre toll free between the hours of 9:00 and 5:00 weekdays, or simply write to us.*

## *Van lifts:*

In many cases, the only practical method for a person with a disability to independently drive or have access to transportation is through the use of a van equipped with an automatic lift. There are several different brands and designs available with a variety of options. Depending on the make and model of van to be equipped, a lift can be installed in the side or rear door. A "fully automatic" lift can be equipped in such a way so that many wheelchair users can independently enter and exit the van. A "semi-automatic" lift is more commonly used in paratransit applications, or when an attendant or other family member will be driving the vehicle. Van lifts can be either "electro-hydraulics" or "all electric" in terms of operational design. Each design has certain advantages and disadvantages. These are briefly described below.

### *Hydraulic lifts:*

These lifts are more commonly used in commercial applications. Paratransit companies, health care institutions, rehabilitation centers, and school districts tend to use lifts that are of the hydraulic design. These lifts have fewer switches to operate so employees can be quickly trained in their operation. They are serviceable by more dealers and replacement parts are, in some cases, available locally. Most hydraulic lifts are heavy and durable. They are often capable of lifting more weight than electric lifts. Their manual back-up systems are easy to understand and use.

Ed 304 433



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## *Electric lifts:*

The "all electric" lifts have different advantages. Because they do not require hydraulic fluid, they are very popular in the colder areas of the country, and with disabled consumers who have their own, custom vehicles. Most electric lifts are lighter in weight, usually not more than 180 pounds. There are no hydraulic hoses or fittings to leak and soil the van floor. The "all electric" principle allows the lift to operate consistently in a variety of climates and temperatures. They are available in the "platform" or "swingout" design. These lifts require a very low operating amperage and usually operate quite well using the vehicle's standard 12-volt DC factory battery. Some brands are quieter when operating. The electric lifts, due to the lighter weight, are more popular for use with the newer mini vans.

## *Manufacturers of Van Lifts* *

**Platform Lifts:**

Braun Corporation
1014 South Monticello
PO Box 310
Winamac, IN 46996
219-946-6153 800-THE-LIFT

Mobile Tech Corporation
Box 2326
Hutchinson, KS 67504-2326
316-663-4441

Crow River Industries
3200 Harbor Lane
Minneapolis, MN 55441
612-559-1680 800-328-3632

Drive Master Corporation
9 Spielman Road
Fairfield, NJ 07006
201-785-2204

Environmental Equipment Corporation
310 Preda Street
San Leandro, CA 90505
415-568-1422

Handi-Van, Inc.
8250 Eastwood Road
Minneapolis, MN 55432
612-786-5235

Kantronics
1202 East 23rd Street
Lawrence, KS 66046
913-842-7745

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1202 East 23rd Street
Lawrence, KS 66046
913-842-7745

Mac's Lift Gate, Inc.
2801 South Street
North Long Beach, CA 90805
213-634-5962

Pick-A Lift, Inc.
2051 East Edgewood Drive
Lakeland, FL 33803
813-665-5355 800-328-LIFT

REB Manufacturing, Inc.
PO Box 276
Carey, OH 43316
419-396-7651

Ricon Corporation
11684 Tuxford Street
Sun Valley, CA 91352
818-768-5890 800-322-2884

Time Savers Products, Inc.
9210 Tokay Lane
PO Box 7147
Sacramento, CA 95826
916-383-2452

Total Mobility Systems & Design
4060 Stewart Road
Eugene, OR 97402
503-686-9706

**Rotary Lifts:**

Drive Master Corporation
9 Spielman Road
Fairfield, NJ 07006
201-785-2204

Electro Van Lift, Inc.
754 Harding NE
Minneapolis, MN 55413
612-378-7028

Originator Corporation
832 Northwest 1st Street
Fort Lauderdale, FL 33311
305-463-7231

Pick-A-Lift, Inc.
2051 East Edgewood Drive
Lakeland, FL 33803
813-665-5355 800-328-LIFT

Ricon Corporation
11684 Tuxford Street
Sun Valley, CA 91352
818-768-5890 800-322-2884

**Chain Lift:**

Handicaps
4335 South Santa Fe Drive
Englewood, CO 80110



* ABLEDATA Fact Sheet #1, January, 1989. The PAM Assistance Centre utilizes Hyper-ABLEDATA for information as to options appropriate to meeting each individual client's needs.

Assessment quiz *

# Considerations in selecting a van lift:

1. Will the lift handle a minimum of 500 pounds?
   ❑ YES ❑ NO

2. Will I need a "dual entry" platform to aid in tight parking situations?
   ❑ YES ❑ NO

3. Is there a dealer within reasonable distance who can provide service?
   ❑ YES ❑ NO

4. Can this lift be removed, transferred, and reinstalled in another van if the need arises?
   ❑ YES ❑ NO

5. Does this lift have a manual back-up system that can be easily operated by a friend or family member?
   ❑ YES ❑ NO

6. If I live near a coastal area where the air is damp and salty, will this lift rust easily?
   ❑ YES ❑ NO

7. Has this lift been tested for safety and dependability by the appropriate agencies?
   ❑ YES ❑ NO

8. Does this carry at least a 1 year warranty that includes parts and labor?
   ❑ YES ❑ NO

9. Are there dealers in other states that can provide service if I should need it while traveling?
   ❑ YES ❑ NO

10. Do I need a lift that will allow non-disabled passengers to also enter the van when the lift is in the folded position?
    ❑ YES ❑ NO



*Information Support Packet, #1,
Center for Rehabilitation Technology Services, South Carolina Vocational Rehabilitation Department
W. Columbia, SC "Adapted Driving Equipment", September, 1989.

# Powered Scooters

## MANUFACTURERS

**A-BEC Mobility/Motion Power**
2842 Business Park Ave
Fresno, CA 93727
213-533-0306
800-421-2249

*Regent, Scoota Bug, Sterling*

**Alpha Unlimited, Inc**
1610 Northgate Blvd
Sarasota, FL 33580
813-351-3488
800-237-6836

*Condor, Mallard, Smart-Kart, Tri-Kart*

**Amigo Mobility International**
6693 Dixie Highway
Bridgeport, MI 48722-0402
800-821-2710
517-777-0910

*Basic, Classic, Medicare Special, Mini, Supreme, Amigo RWD*

**Braun Corporation**
1014 South Monticello
PO Box 310
Winamac, IN 46996
219-946-6157

*Tri-Wheeler*

**Burke, Inc**
1800 Merriam Lane
Kansas City, KS 66106
913-722-5658

*Super-Scout*

**Dignified Products Corporation**
PO Box 337
Mantua, NJ 08051
800-548-7905

*Butler, Butler Jr, Chauffeur*

**Electric Mobility Corporation**
1 Mobility Plaza
Sewell, NJ 08080
800-662-4548
609-468-0270

*Rascal Convertible*
*Rascal Deluxe 210, 220, 230, 240*
*Rascal Standard 110, 120, 140*

**Everest & Jennings, Inc**
3233 East Mission Oaks Blvd
Camarillo, CA 93010
800-235-4661
213-728-3931

*Carrette, Mobie Premier, Mobie II*

**Fortress Scientific**
61 Miami St
Buffalo, NY 14204
800-263-1408
404-952-2792

*2000FS, 2200FS*

**Invacare Corporation**
PO Box 4028
899 Cleveland St
Elyria, OH 44036-2125
216-365-3614
216-329-6000

*Dart*

**Jubilee Scooters, Inc**
324 Lakeside Drive
Suite A
Foster City, CA 94404
415-571-5323

*California Comfort*

**Leisure Lift**
1800 Merriam Lane
Kansas City, KS 66106
800-255-0285

*Pacesaver Plus, Pacesaver Plus II, Viva*

**Master Group, Inc**
315 North Baldwin St
Greenfield, IN 46140
317-462-2292

*Master 1, Master 2*

**Mobility Engineering**
1377 East 17th Street
Tucson, AZ 85719
602-792-1133

*Roadrunner*

**Motovator**
1733 Border Ave
Torrance, CA 90501
213-320-5941

*Motovator*

**Ortho-Kinetics, Inc**
W220 N507 Springdale Rd
PO Box 1647
Waukesha, WI 53187
414-542-6060
800-558-6632

*Bravo 434, Encore 438*
*Lark 4304 & 4351*
*Pony II 4312 & 4313*
*Sierra 441 & 446*

**Voyager, Inc**
527 West Colfax
South Bend, IN 46601
800-233-2682
219-288-0511

*Magnum, Unitrol*

Credits:
ABLEDATA
Fact Sheet #5
May, 1989.

Adaptive Equipment
Center, Newington
Children's Hospital,
181 Cedar Street
Newington, CT 06111

# Battery-Powered Scooters and 3-Wheelers

## *Power and Drive Systems*

Most 3-wheelers have either a front or rear wheel drive design. Each has its advantages and disadvantages. Those with a single, front wheel drive are better suited for indoor use on firm, level surfaces. The majority are powered by two 12-volt batteries although a few have a single 12-volt battery as their power source. Those using a single 12-volt system will be limited in range and grade-climbing ability, but due to their frame will allow a shorter turning radius and thus better maneuverability within the home. In addition, front wheel drive models tend to weigh less, thus making them easier to disassemble and load into an automobile or push manually in the event of a power failure.

Rapidly gaining popularity are models with a dual rear wheel drive system. This design provides better traction due to the twin action of the rear wheels and the increased weight directly over the rear axle. The rear wheel drive models are larger in size and typically use a 24-volt dual battery system. This delivers a longer range per charge than a single battery system. These models are generally better suited to use outdoors because they are more stable and provide better traction in grass or sand. Also, the rear wheel drive models can climb moderate inclines with a greater speed than front wheel drive vehicles. A disadvantage is that these models are heavier and require more time and effort to disassemble and load into a car. Quite often a trunk lift, lift-equipped van, or other powered lift will be needed to transport the rear wheel drive models. In addition, rear wheel drive scooters may not be as practical for indoor use and often have to be used in conjunction with a standard manual wheelchair or else a smaller 3-wheeler indoors.

## *Batteries*

Most of the 3-wheelers available today use "gel" or "lead acid" deep cycle batteries. Lead acid batteries are somewhat less expensive and can have a longer life, but require periodic maintenance. Gel batteries are more costly, but require no maintenance outside of regular charging. One major advantage of gel batteries is that commercial airlines will allow them aboard their aircraft if air travel with the scooter is necessary.

## *Steering and Control Features*

The most popular and widely used steering method for 3-wheelers is the front handlebar design. It is similar to a bicycle handlebar except that it is shorter in horizontal width. Direction and ground speed are controlled by a lever on the handlebar which can be adjusted to a variety of positions to accommodate individual needs and capabilities. Usually, the motor is activated by a push, pull, or squeeze of the finger, thumb, hand, or wrist. In conjunction with a variable speed lever, several manufacturers use a Hi/Lo speed switch or an adjustable "maximum speed" setting. These

features allow the user to individually tailor the ground speed and sensitivity of the controls. Most models of 3-wheelers also have an adjustment to tilt the handlebar from 90 degrees to 30 degrees. This enables the user to position the controls for the ultimate in convenience. The average top speed for most 3-wheelers is around 5.5 miles per hour, although this may vary depending on the particular make and model and the terrain over which it is being driven.

## *Braking*

Braking systems used on 3-wheelers are usually one of four types: manual, electromechanical, regenerative, and dynamic. Regenerative and dynamic generally work together, and the scooter will stop when the user takes his hand off the speed control. Electromechanical braking systems, introduced in the past two to three years, enable a scooter to stop on a hill. Without electromechanical braking, 3-wheelers may not be as safe to operate in hilly terrain. A manual braking system is usually a simple hand lever that is used to engage an immobilization device against one or more wheels. This is considered by many users to be more of a "stabilization" device rather than braking.

## *Seating and Armrests*

The disability of the user will normally determine what seat options are needed. Most manufacturers offer at least two options in upholstery and cushioning. A disabled individual who lacks normal sensation in the thighs and buttocks will often need a thicker cushion or often a "prescription" cushion. On the other hand, if the person is sensate and can tolerate longer sitting times, they may need nothing more than a plastic molded or vinyl covered seat. Finally, if the user will need the 3-wheeler to assist in activities of daily living such as doing laundry or standing at a sink, a powered elevating seat with a swivel feature might be necessary. Considerable thought should be given as to what activities will be done from the device prior to ordering seating features. Also, some thought should be given to armrests and whether they are necessary. Most users find they aid in trunk balance and in weight shifts. Most manufacturers offer armrests that flip up and detach to aid in transfers.

*The Assessment Quiz on the following page should be used as a checklist when purchasing a 3-wheeled scooter. Answer these questions as they pertain to your needs or those of the person using the device.*

# Questions to consider when shopping for a 3-wheeled scooter:

1. Will this device be used primarily indoors or outdoors? What percentage of time for each?
   ❑ YES ❑ NO

2. Can the user independently disassemble and load the scooter into a car, if needed?
   ❑ YES ❑ NO

3. Can the user independently attend to minor maintenance such as the batteries, brake adjustment, tire air pressure and similar items?
   ❑ YES ❑ NO

4. Will this 3-wheeler operate on both "gel" or "lead acid" batteries? Is there a nearby source to buy batteries at a reasonable cost?
   ❑ YES ❑ NO

5. Will the dealer provide service for the vehicle, or will the user have to deal with a manufacturer by phone or correspondence?
   ❑ YES ❑ NO

6. When disassembled, will the 3-wheeler fit into the car's trunk, luggage area, or back seat?
   ❑ YES ❑ NO

7. Does the dealer also offer a lifting mechanism compatible with the scooter to aid with loading and unloading? Will the dealer install, adjust, and service the lift?
   ❑ YES ❑ NO

8. Is the user's home architecturally accessible to the extent that using a 3-wheeler indoors will be practical? Does the home have a ramp? How wide are the doorways?
   ❑ YES ❑ NO

9. How long is the manufacturer's warranty? Does it include parts and labor?
   ❑ YES ❑ NO

10. Does the dealer stock replacement parts or will they have to be ordered? How long will this take?
    ❑ YES ❑ NO

11. How far away does the user live from the nearest factory-authorized dealer?
    ❑ YES ❑ NO

12. Will the user need special features such as a front basket, swivel seat, or powered elevating seat? Are the added conveniences worth the additional costs?
    ❑ YES ❑ NO

13. Does the 3-wheeler under consideration offer enough adjustments and add-on features to accommodate the user's disability five years in the future?
    ❑ YES ❑ NO

* "Information Support Packet," #2

Prepared by
John H. Stevens

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Inside:

The Selection of a Van Lift
or a Scooter

## SCOOTERS

The popularity of small, transportable 3-wheeled scooters and similar mobility devices has increased dramatically in recent years. These products enable persons with disabilities to remain active in their homes, communities, and places of employment.

While 3 wheelers can assist individuals with all types of disabilities, they are primarily designed to aid the "mobility limited" person. Usually, this is a person who has limited ability to ambulate for distances that would be considered normal for a nondisabled person. Individuals with disabilities such as multiple sclerosis, heart and lung conditions, arthritis, or other conditions that limit one's endurance and stamina are good candidates for 3-wheeled vehicles.

Three-wheelers are available in a variety of designs and sizes. Various options and accessories are offered to help meet a person's individual needs. Anyone who is considering the purchase of a 3-wheeler should first shop around, compare prices, and evaluate their own needs before making a decision. This guide can assist them in their efforts.

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